

# ADVENTURES *in* REDESIGN



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# Adventures *in* Redesign

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THE YOUNGSTOWN PRESSED  
STEEL COMPANY  
*Warren, Ohio*





*"Press It from Steel Instead"*



## Foreword

SOMEWHERE in every man's nature there lurks the spirit of adventure. And there are always a few who are led by that spirit to go out and search for something that may lie beyond the beaten paths. They are the pioneers, the men who face unknown obstacles to discover new lands, to explore wildernesses, to blaze trails.

Such a spirit has made the Youngstown Pressed Steel Company one of the pioneers of modern industry.

Not so many years ago this company was merely one of several metal stamping concerns. To be sure, it had an excellent equipment for producing standard pressed steel parts in any gauge, from the lightest to the heaviest; it carried a competent staff of skilled metal engineers, and it did a very good general-stamping business.

But the YPS men were not content to rest there, and the spirit of adventure led them to go exploring, seeking opportunities for using their equipment and their engineering "brains" in new and more effective ways. So they struck out into that little known, and at that time, somewhat mysterious field of Pressed Steel Redevelopment.

In this little book you will find some of the adventures encountered by the YPS Pioneers on that expedition.

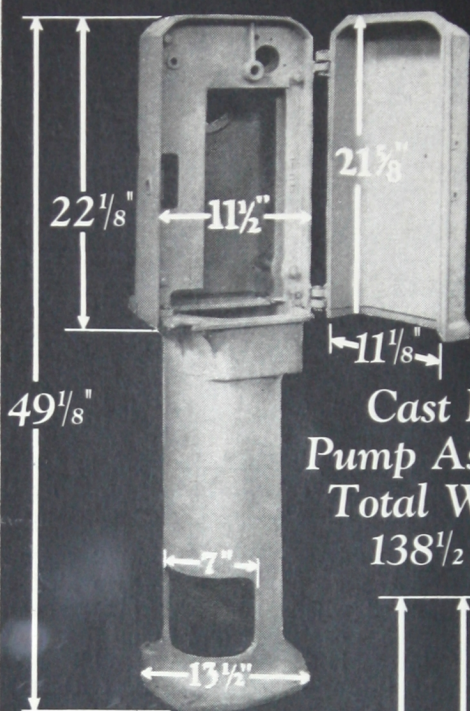
Each adventure is an actual example of the surprising *savings* which resulted when the YPS Pioneers came upon a cast part and found they could "press it from steel instead." Many of these, such as that of the Gas Meter Cover, for example, were encountered in the most casual way. Others were found farther afield. And there has been an increasing number of adventures in *original* design, such as that of the Conlon Washer.

In fact, the YPS Redevelopment Engineers have not in any way limited their search for new adventure. They have never hesitated at the size nor complexity of an obstacle. Neither do they ignore opportunities which might, at first, seem hardly worth attention—for often these apparently simple incidents have proved to be the most valuable adventures of all.

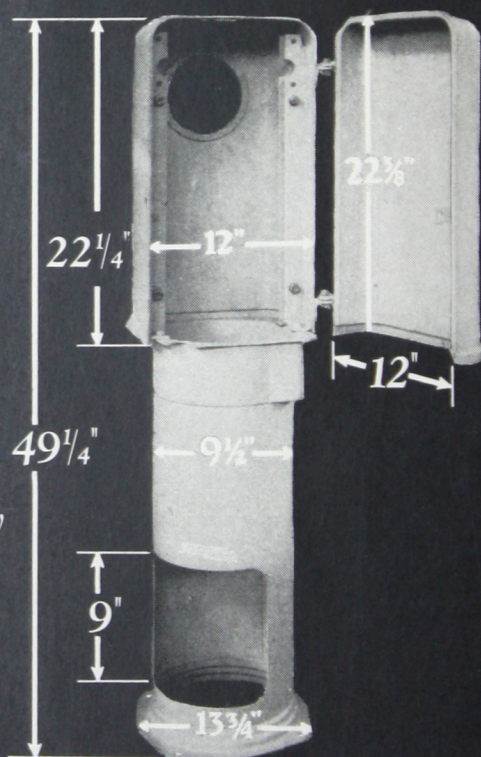


So, as you follow the adventures of the YPS Redevelopment Engineers, stop and consider your own product. Perhaps an adventure in redesign lies waiting there, too. Why not go exploring—with the YPS Pioneers?





**Cast Iron  
Pump Assembly  
Total Weight  
 $138\frac{1}{2}$  lbs.**



**Pressed Steel  
Pump Assembly  
Total Weight  
 $52\frac{1}{2}$  lbs.**



## They Made One Pound of Pressed Steel do the Work of Three Pounds of Iron— and do it Better

**N**OT many years ago the Wayne Tank and Pump Company was producing a pump standard made up almost entirely of heavy cast iron parts. It was a situation made to order for the YPS Redevelopment Engineers and they made the most of it.

First, working with the experimental department of the Wayne Company, they learned that the cast door weighed 28½ pounds. They found they could "press it from steel instead" and cut the weight to only 6½ pounds without sacrificing strength. In other words, *four pressed steel doors* could be produced from the same weight of material that had been required to make *one cast iron door*.

Next came the door frame. The situation was slightly different here and a small change in its design was necessary to "press it from steel instead" economically, but the weight was reduced from 34 pounds to 21 pounds. Again, there was no sacrifice of strength.

The heaviest single part of the entire assembly was the base, supporting the door frame, and serving as a container for the pump. The cast base was an iron cylinder 27 inches high and

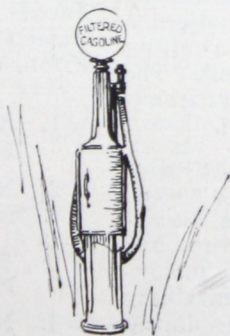
over 8 inches in diameter, weighing 55 pounds—quite a sizeable piece to replace with a pressed part. But a beautiful bit of pressed steel engineering solved the problem and the weight of the base was reduced 67%.

The back housing presented a problem similar to that of the door. It weighed 21 pounds when cast. It was replaced with a pressed steel housing that weighed only 7 pounds.

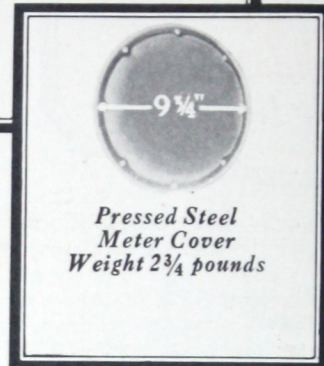
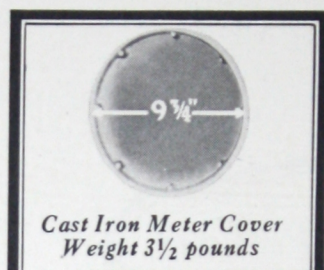
When the redevelopment was completed and they took stock of the results they found the total weight of the assembly had been reduced from 138½ pounds to 52½ pounds.

Shop handling, assembly and freight costs had been reduced proportionately. The smooth pressed steel surface gave a better paint and enamel finish. And, above all, the pressed steel pump standard was much stronger—all liability of breakage from rough handling in the shop or in transit, or from accident after the pump stood in place, had been eliminated.

In short, the YPS Engineers had succeeded in making one pound of pressed steel do the work of nearly three pounds of cast iron—and do it better!







### *A Broken Meter Cover that Saved Money for the Meter Maker*

**O**PPORTUNITIES to "press it from steel instead" have been discovered sometimes by the merest chance.

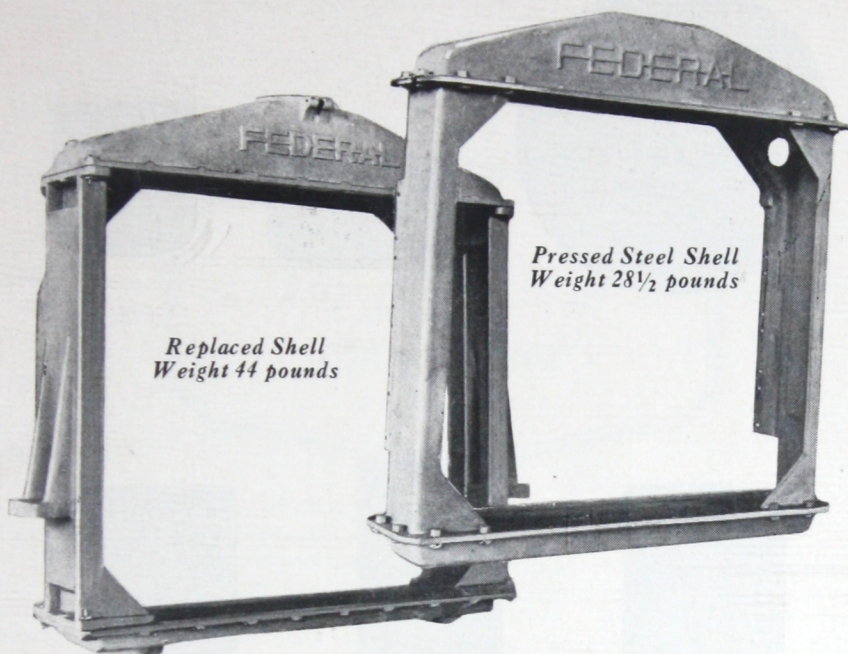
One day a YPS Redevelopment Engineer was standing at a corner waiting for his car. Near him he noticed a gas meter lying at the curb awaiting installation in a new dwelling. The covers of this meter were cast iron—and one of them was cracked.

He jotted down the name of the meter manufacturer and later made a special trip to that plant. There he discovered that the cast meter-covers had to be ground and drilled before mounting, and that there was an amazingly high loss because of breakage during assembly and en route.

It was easy to show the meter manufacturer the advantages of having these cast meter-covers pressed from steel instead. And the pressed steel covers that were designed and produced by the Youngstown Pressed Steel Company actually brought him a four-way saving—

1. A saving of 10 per cent in first cost of the parts.
2. No machining—no drilling—ready for assembly.
3. A weight saving of  $\frac{3}{4}$  lbs. per part— $1\frac{1}{2}$  lbs. per meter.
4. No breakage from rough handling or accidental bumps.





*Replaced Shell  
Weight 44 pounds*

*Pressed Steel Shell  
Weight 28½ pounds*

*It Looked Intricate,  
but not to  
the YPS Engineers*

ONE of the earliest opportunities to prove their ability to redesign an intricate cast part and "press it from steel instead" came to the YPS Pioneers from one of America's foremost motor truck manufacturers. He had heard about their success in pressed steel redevelopment for several other manufacturers and decided to have a YPS Engineer visit his plant to study the possibilities of redeveloping certain parts of his trucks.

At that time he was using a cast iron radiator shell on his trucks. Was it too intricate in construction to be pressed from steel profitably? The YPS man saw at once that it could be done easily.

Working closely with the manufacturer's own staff of automotive engineers the YPS Redevelopment Engineers and Designers soon developed a radiator shell similar in appearance to the old one but much more satisfactory in almost every respect.

In cost-per-unit and production time the new pressed steel shells are, of course, much cheaper. But the saving to the truck manufacturer does not end there.

The cast shells weighed 44 pounds each. The pressed steel shells weigh only 28½ pounds—a reduction of more than 35%. This has made a very important cut in shop-handling and assembly costs at the truck factory.





*Fig. 1*



*Fig. 2*



*Fig. 3*



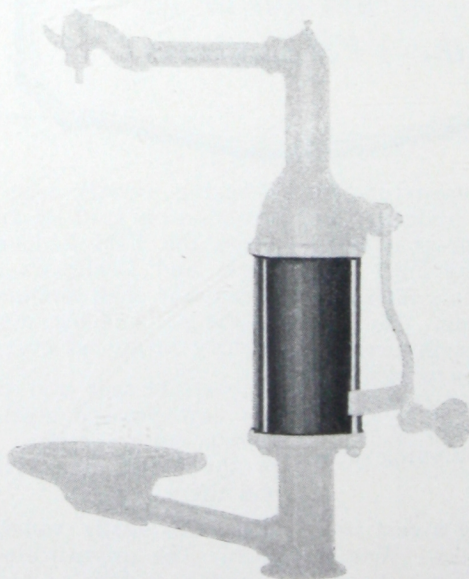
*Fig. 4*



*Fig. 5*



*Fig. 6*



*"Press It from Steel Instead"*



## The Miracle of the Presses

**T**O take a flat piece of sheet steel and press it, cold, into a perfect seamless cylinder without changing the gauge so much as a hair's breadth, might seem quite miraculous to one unfamiliar with the methods of the YPS Pressed Metal Engineers. But the long experience of these men in working cold steel into various forms enables them to produce cylinders in this way easily, and to make these accurate in dimensions to the finest degree.

The Marvel Equipment Company formerly used brass cylinders in their oil dispensing pumps in spite of the rather high cost of this material. The reason for this was that the very precise construction of these pumps demands that the cylinders do not vary on inside dimension more than  $+.010$  of an inch or  $-.000$ , nor more than  $.004$  of an inch out of round. Brass tubing was thought to be the only material which could meet such accurate specifications.

One day a YPS Redevelopment Engineer dropped in at the Marvel plant. With the Marvel engineers he studied the characteristics of these cylinders. He quickly convinced them that the Youngstown Pressed Steel Company could duplicate the won-

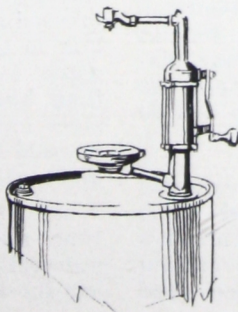
derful accuracy of the brass cylinders at much lower cost.

Shortly after this the big YPS presses were busily working their miracle—smoothly, steadily, surely forming these beautifully perfect cylinders from flat sheets of steel.

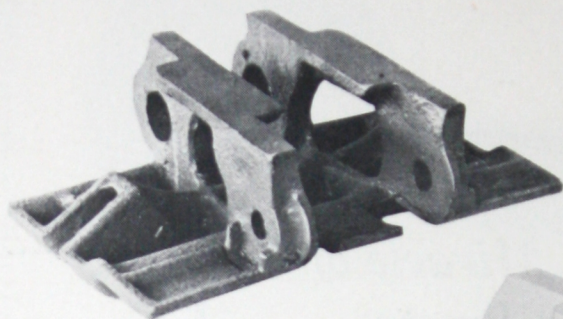
First, from sheets of the exact gauge specified for the cylinders, blanks of just the proper area were cut (Fig. 1). Under the presses these were drawn down in cupping dies which reduced the diameter 20% (Fig. 2).

After annealing to reduce the metal's "hardness," and pickling to remove scale, these cups went under the presses two more times. Each of these operations reduced the diameter 15% (Figs. 3 and 4). Each pressing operation was followed by another annealing and pickling, and then the final pressing reduced the diameter about 10% and brought it within the exact limits stipulated. (Fig. 5).

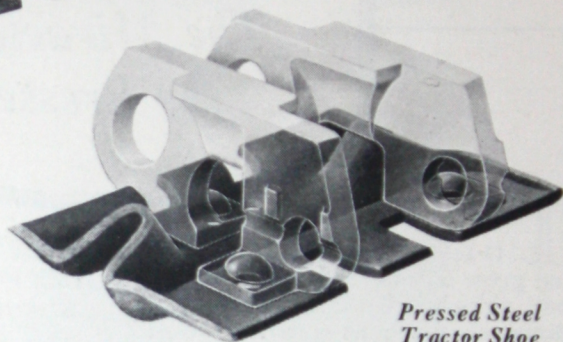
After careful inspection the cupped ends were cut off on a lathe and both ends of the resulting cylinders (Fig. 6) trued up, ready for assembly at the Marvel plant without further machining except burring—all at a cost far less than that of the brass cylinders formerly used.







*Replaced cast  
steel Tractor Shoe*



*Pressed Steel  
Tractor Shoe*

## *What Uncle Sam Discovered*

**D**URING the last war all the available steel casting capacity in the country was, of course, taxed almost to the breaking point. The Government was forced to find every possible means of relieving this situation. Every process which might be used to satisfactorily replace casting was carefully investigated, and it was at that time that many important discoveries were made regarding the advantages of pressed steel in a wide range of uses.

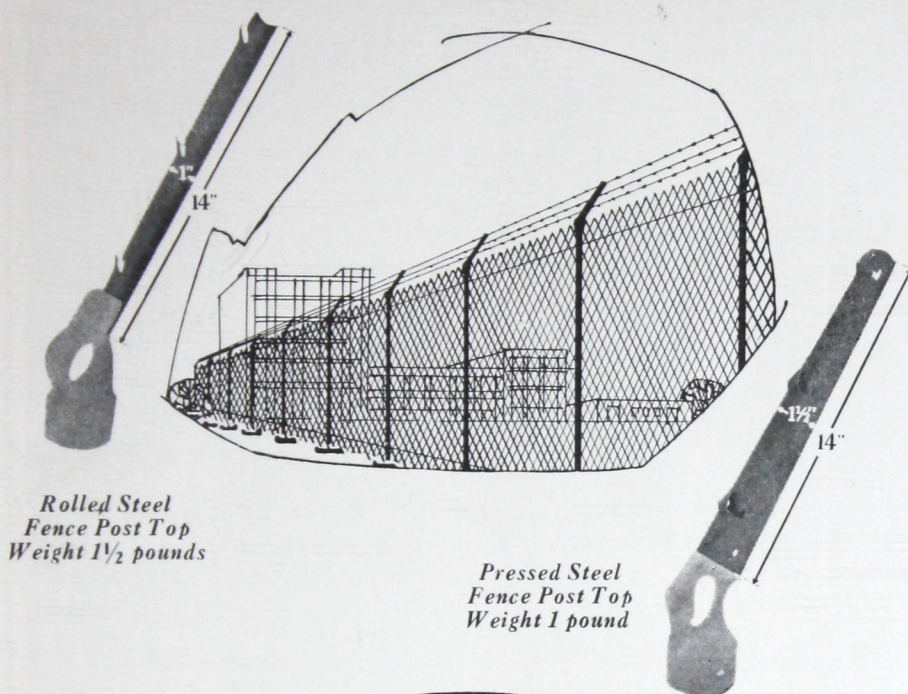
A small but not unimportant example of what was accomplished with pressed steel during the Government's research is shown here. A certain type of artillery tractor shoe used

by the army had always been made of cast steel. The YPS Engineers working with Government Engineers redesigned this casting slightly so that the YPS presses could "press it from steel instead."

Government tests proved that the pressed steel shoe, riveted to a forged link in the tractor assembly, actually made a much stronger combination than had been obtained before with steel castings. And, of course, the pressed part could be produced much more rapidly and cheaply.

What "Uncle Sam" learned in war-time about pressed steel has been successfully turned to peace-time saving for a great many industries.





*Rolled Steel  
Fence Post Top  
Weight 1 1/2 pounds*

*Pressed Steel  
Fence Post Top  
Weight 1 pound*

## *Putting a Stop to Complaints*

FOR years a prominent manufacturer of woven wire fencing had been receiving complaints about the fence-top pieces which he supplied. These fence tops were designed to extend up and out from the fence posts and support barbed wire as extra protection. These were made of hot-rolled T channel, and that material was so brittle that the lugs holding the wire had a tendency to break off. This, of course, rendered the whole piece useless.

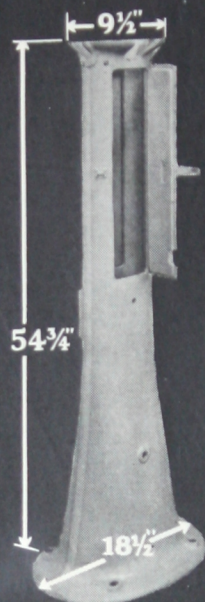
The matter was presented to the YPS Redevelopment Engineers. Would it be possible to eliminate such complaint? They found that it would—that they could redesign this piece

so that it would be possible to “press it from steel instead.” So they produced the fence post top which this manufacturer is now using.

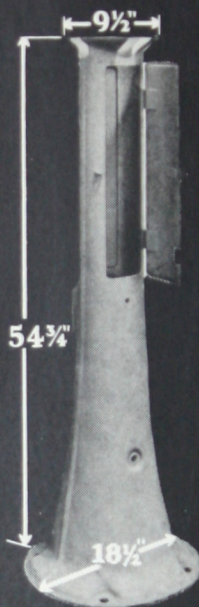
The pressed steel fence post top which the YPS presses are now turning out is proving more than satisfactory. Its cost to the fence manufacturer is practically the same as the one it replaces. But there is a saving in weight of fully a third, which makes a very substantial cut in his yearly shipping costs.

And, most important of all, complaints have entirely ceased, because the pressed steel lugs are tough enough to stand the severest strain.

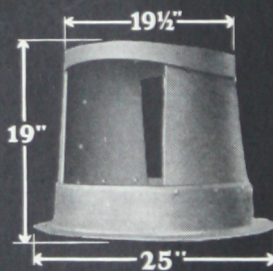




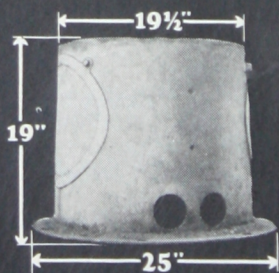
**Replaced Cast  
Pedestal  
Weight 155 pounds**



**Pressed Steel  
Pedestal  
Weight 60 pounds**



**Pressed Steel Base  
Weight 51 pounds**



**Replaced Cast Base  
Weight 76 pounds**



**The Fry  
Visible Pump**



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## *They Profited Once— They Came Again*

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**I**T IS a rather significant fact that practically all the important manufacturers of gasoline dispensing pumps in the country are using, somewhere in their products, metal parts which the YPS Redevelopment Engineers have helped redesign. In a number of instances practically the entire pump assembly is now being "pressed from steel instead" at the YPS plant.

A few of these pump redevelopments are shown elsewhere in this book and here is one of the most recent examples of YPS achievement in this field.

The Guarantee Liquid Measure Company had profited much in the past through the work of the YPS organization in pressing various parts for their products from steel instead. It was natural, then, that they should turn to the YPS Redevelopment Engineers with the problem of redesigning the base and pedestal of their "Fry Visible Pump," confident that these parts would be "pressed from steel instead" to their advantage. They were not disappointed, as will be seen from the illustrations. The YPS Redevelopment Engineers went to work with a vim and soon had replaced the cast-iron base which

weighed 76 pounds with a pressed steel base which weighed only 51 pounds.

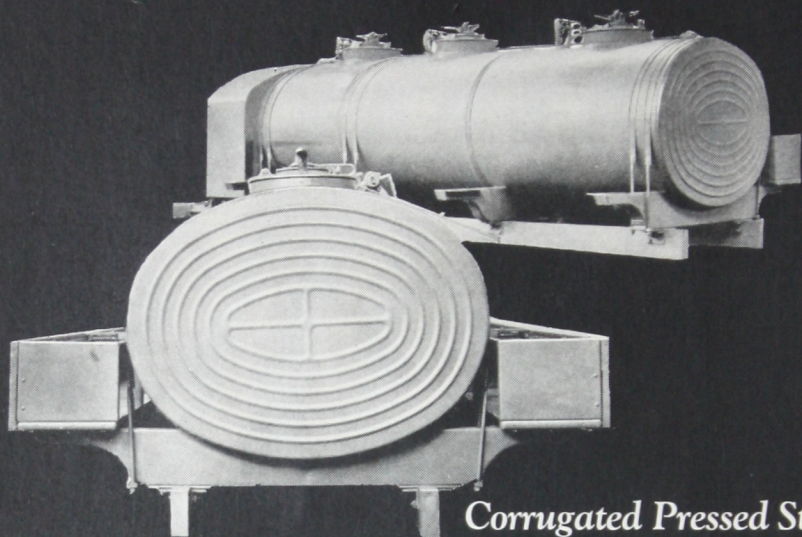
An even greater weight reduction resulted in pressing the pedestal from steel instead. The casting weighed 155 pounds, the pressed steel pedestal which replaced it weighed only 60 pounds—a saving of 95 pounds per pump. This, alone, helped cut down freight and shop-handling costs very decidedly.

But these are only two of the more conspicuous parts which the big YPS presses are stamping out for Fry Pumps. The tops, the globe-holders, the adapter rings, and the pump handles are also pressed from steel instead.

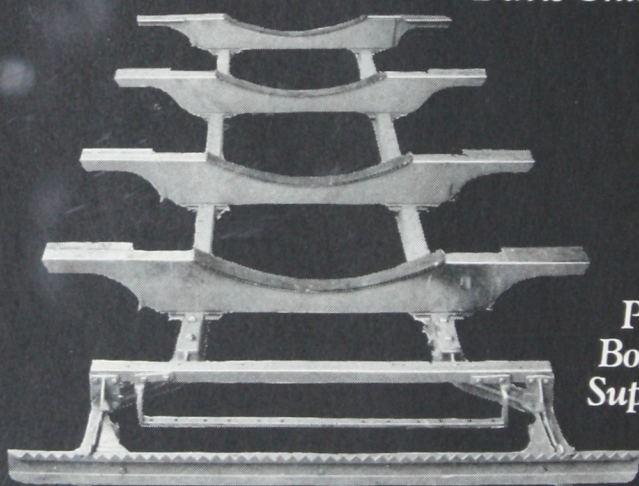
In fact almost the entire assembly of the "Fry Visible Pump" which is so familiar to motorists in almost every part of the country has been given all the advantages of pressed steel—lighter weight, greater strength, perfect uniformity, no possibility of breakage, smooth surface for enameling, parts delivered for assembly without necessity of further machining—all at a greatly reduced unit cost to the Guarantee Liquid Measure Company.



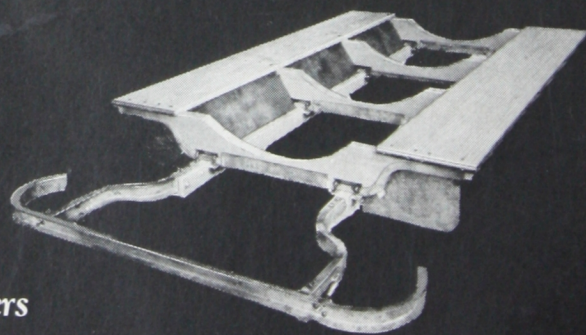




*Corrugated Pressed Steel  
Compartment Heads on  
Davis-Ohio Tank Bodies*



*Pressed Steel  
Box Bolsters for  
Support of Tanks*



*Replaced  
Wooden Bolsters*

*"Press It from Steel Instead"*



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*—and then they came  
to “Pressed Steel  
Headquarters”*

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IT IS no longer an uncommon occurrence for a manufacturer to come, quite unsolicited, to pressed steel headquarters—the Youngstown Pressed Steel Company—and ask the YPS Redevelopment Engineers to help study the possibilities of pressing certain parts from steel instead. This was what happened in the case of the Davis Welding and Manufacturing Company of Cincinnati.

This Company carries a staff of engineers who are constantly seeking ways of improving the Davis-Ohio tanks. These engineers saw an opportunity of using pressed steel to great advantage in the construction of the Davis tanks. So, after thorough study of the matter and working out the idea, they recommended that experienced pressed steel engineers be called in for consultation.

The YPS Redevelopment Engineers took up the study with the Davis Engineers and a number of very interesting and highly successful redevelopments were produced by the two groups working together, as will be noted in these quotations from one of the Davis Welding Company's advertisements:

“After months of experi-

menting we have developed a new type of Tank Body—greatly reduced in weight and greatly increased in strength.

“These new Tank Bodies have pressed steel Box Bolsters. The Bolsters are pressed out in halves and telescoped together to form a Bolster of great strength and superior finish. They fit the tank perfectly without hand fitting, are very simple, easy to keep clean, and are much lighter in weight.

“The corrugated compartment heads with their flanges for the Standard Davis Ohio Compartment Construction are being stamped out with large dies. This enables us to assemble the bodies much faster with less floor space and give greatly improved deliveries. The corrugated pressed heads are exact in dimension, and the compartments are therefore accurate as to capacity. The corrugations stiffen the heads, thus eliminating buckling.

“We have demonstrated by a series of exhaustive tests at a University testing laboratory, that with this new construction our compartments will stand a stress of 25 to 35 percent greater than the old, flat, heavier gauge construction.”







*Cast Dome  
and Door  
Weight 78 pounds*



*Pressed Steel  
Dome and Door  
Weight 13 $\frac{1}{4}$  pounds*



### *An Almost Unbelievable Weight-Saving*

ONE of the most startling examples of weight-saving ever achieved by the YPS Redevelopment Engineers is shown here. It was a rather complicated bit of pressed steel engineering, too, requiring very accurate deep-drawing of heavy gauge metal.

The Gilbert and Barker Manufacturing Company originally used iron castings for this assembly—the dome and door of their pump standard. These cast parts weighed 78 pounds.

When these same parts were redesigned by the YPS Redevelopment Engineers and “pressed from steel instead” by the big YPS presses, *they weighed only 13 $\frac{1}{4}$  pounds*—an actual weight reduction of more than 82 per

cent. This, of course, brought about a great saving in assembly and shipping costs. The fact, also, that each pressed steel dome was absolutely uniform in dimension helped speed up assembly.

Could such comparatively light parts possess the necessary strength? Actual tests showed that the pressed steel domes were really stronger than the castings. And, whereas there had been considerable loss due to breakage of the cast parts, the pressed steel parts *could never even crack*, “toughness” being one of the outstanding characteristics of this material. And, finally, of course, it cost much less to “press it from steel instead.”





*Cast Wheel  
Weight 125 pounds  
Diameter 20" on Tread*



*Pressed Steel Wheel  
Weight with Hub 47 pounds  
Diameter 20" on Tread*

## *Cutting the Weight 300 Pounds*

ONE of the biggest problems faced by a certain manufacturer of industrial cars was not how to make them strong enough, but how to make them light enough, since, in use, these cars were usually pushed by hand, and frequently had to be lifted off and on the tracks.

This manufacturer had been equipping the cars with cast iron wheels. Since each of these wheels weighed 125 pounds the car's wheel-weight alone amounted to 500 pounds.

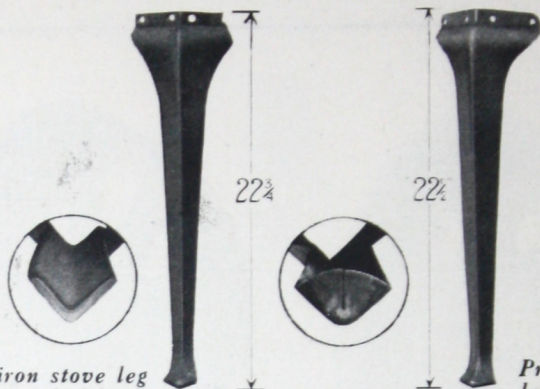
When the YPS Redevelopment Engineers told this manufacturer that they were sure these wheels could be pressed from steel instead at a great reduction in weight he was somewhat

incredulous. Did they mean to say that the Youngstown Pressed Steel Company had presses capable of shaping wheels from steel—pressed cold—strong enough to stand up under the loads these cars had to carry?

They did! And the pressed steel wheels which were designed by the YPS staff and stamped out by the big YPS presses are *only about a third as heavy* as the cast wheels they replaced.

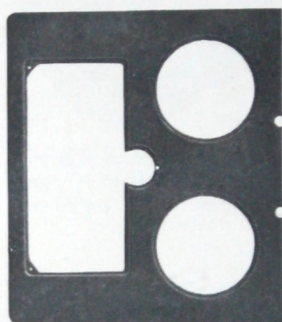
The change reduced the weight of each car over 300 pounds—and cars equipped with the pressed steel wheels not only handle every sort of load easily but are handled easily themselves.



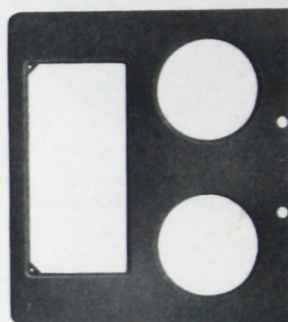


*Cast iron stove leg  
that cost \$1.25 en-  
ameled*

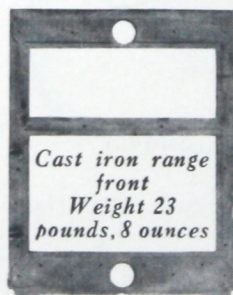
*Pressed Steel stove  
leg that cost 85  
cents enameled*



*Cast iron range top  
Weight 31 pounds*



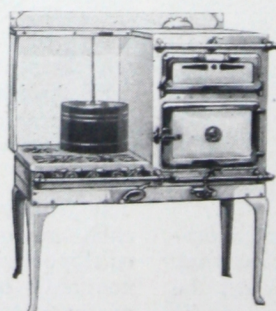
*Pressed steel range top  
Weight 11 pounds, 6 ounces*



*Cast iron range  
front  
Weight 23  
pounds, 8 ounces*



*Pressed steel  
range front  
Weight  
10 pounds*



*"Press It from Steel Instead"*



## "Out of the Rut of Tradition"

*How Some of the Deep-rooted Habits  
of the Stove Industry  
Were Changed*

STOVE making is an old and honored industry. And although the manufacturers have been very progressive in the matter of improving stove design, they have been rather inclined to follow the good old law of habit in one particular direction—that of using cast-iron extensively.

Of course, it must be considered that, for generations, cast-iron was the only material which was at all practicable for their purpose. But, during all these years they suffered, more or less patiently, from the numerous shortcomings of this material. Its brittleness cost them heavily in the breakage of expensive parts. Its weight made shop-handling and freight charges mount high. The casting of parts that would fit perfectly was decidedly difficult and there was much waste because of this.

But one of the greatest drawbacks of cast-iron was disclosed when the demand arose for white porcelain enameled ranges. It proved to be almost an impossibility to produce an even, white vitreous enamel finish on the cast parts, which, in color, would match that on the sheet steel used for other parts of the ranges.

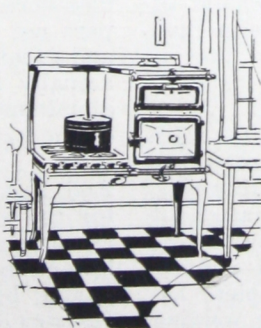
So it remained for the YPS Redevelopment En-

gineers to 'waken these manufacturers to the fact that they might be freed from this "cast-iron yoke," and to show them how pressed steel could serve them profitably and well.

Their success in this effort has been widespread. On the opposite page are shown a few examples of the cast parts which they redesigned and which the big YPS presses pressed from steel instead. In each instance the pressed steel shows at least *eight distinct advantages over the cast parts which they replace:*

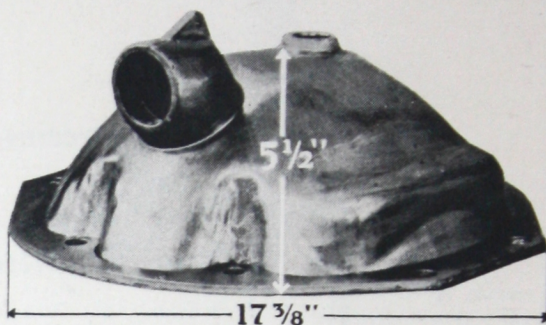
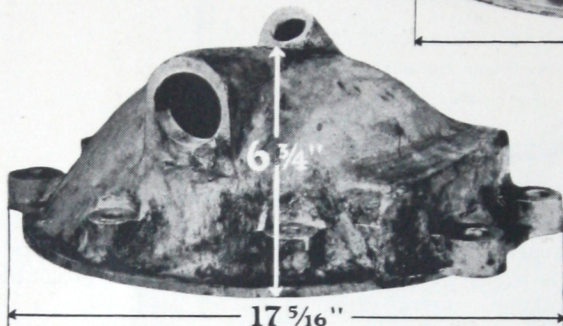
1. Absolute uniformity.
2. Weight decreased 25% to 75%.
3. No breakage.
4. Increased Strength.
5. Smoother Surface.
6. No Machining.
7. Perfect enameling color control.
8. A 30% to 50% saving in enameling cost.
9. Unit cost reduced 20%

Note:—From the Youngstown Pressed Steel Company's experience in redesigning and pressing from steel various sizes and types of stove legs, a complete line of standard stove legs has been developed. From this line, legs fitting almost any stove requirements can be supplied at remarkably low cost.





*Aluminum Casting  
Weight  
9 pounds, 8½ ounces*



*Pressed Steel  
Shell Alone Weighs  
9 pounds, 7 ounces  
Inserted Flange and Elbow  
Weighs 1 pound, 14 ounces*

## *"It Can't Be Done? Here It Is!"*

ON THE wall of the designing room where the YPS Redevelopment Engineers work, hangs this slogan—"It Can't Be Done? Here It Is." That was exactly the spirit in which these men attacked the problem of redeveloping this cast-aluminum Dual Reduction Housing Cover so that it might be pressed from steel instead.

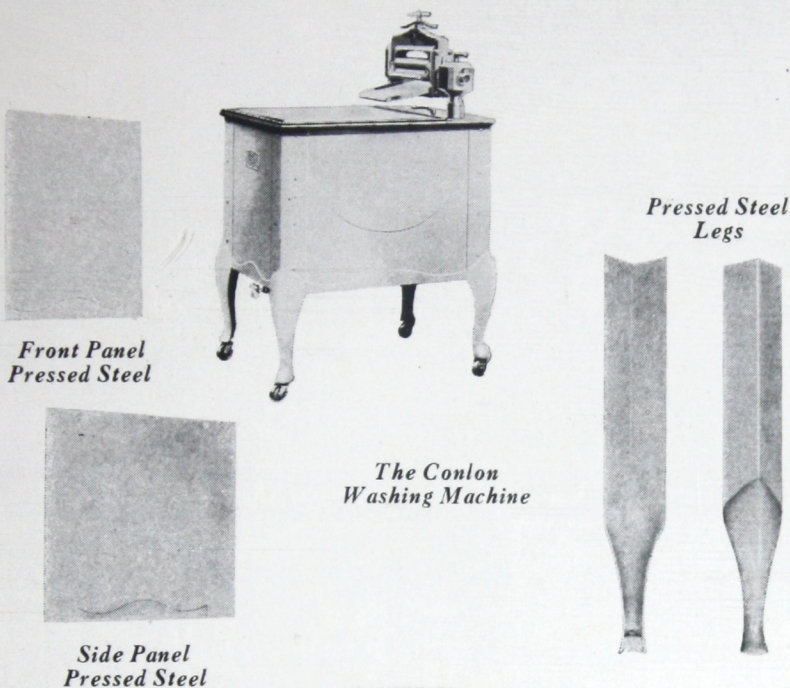
To begin with, the shape of the part was complicated, requiring exceedingly delicate die construction. However, the real job was not a matter of pressing, but of designing the part to provide for a tapped thread—an important element in the complete assembly. This was solved by welding

a cast elbow to the pressed steel part.

This difficult bit of pressed metal engineering was accomplished in a most satisfactory manner. And then it was discovered that the new pressed steel part not only was correct in design and greatly improved in strength, but actually matched in weight the cast aluminum part it replaced, in spite of the natural lightness of aluminum.

And, best of all, it proved to be easy for the big YPS presses to "press it from steel instead" at a cost 33⅓% lower than the manufacturer had been paying before to have the Reduction Housing covers cast in aluminum.





## Starting from Scratch

IT IS not always the case that the YPS Redevelopment Engineers are required to *redesign* parts originally made of cast metal. Often these men are asked to study a new product when it is first conceived and give manufacturers the advantage of pressed steel engineering from the very outset.

That was the procedure in the case of the Conlon Washing Machine. The YPS organization had already saved the Conlon Corporation a good deal of money by making pressed steel parts for a number of other products, so when the new washer was being developed the services of a YPS Re-

development Engineer were requested. The YPS man spent many days at the Conlon plant with the Conlon designers and engineers. From the data thus collected the YPS staff worked out preliminary designs and sample parts for Conlon's approval.

As a result, the Conlon Washer, as it stands today, with its pressed steel panels and legs, is light in weight and free from any danger of breakage in transit or in use. The YPS presses turn out the parts to exact measurement, ready for final assembly without further machining—at a unit cost far lower than cast parts would have amounted to.

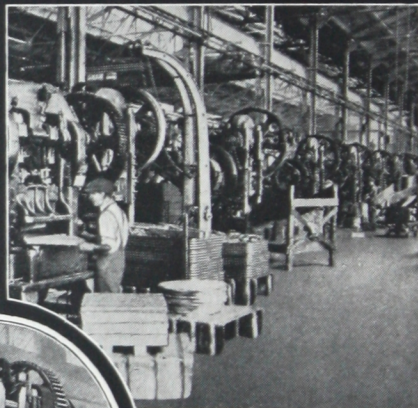




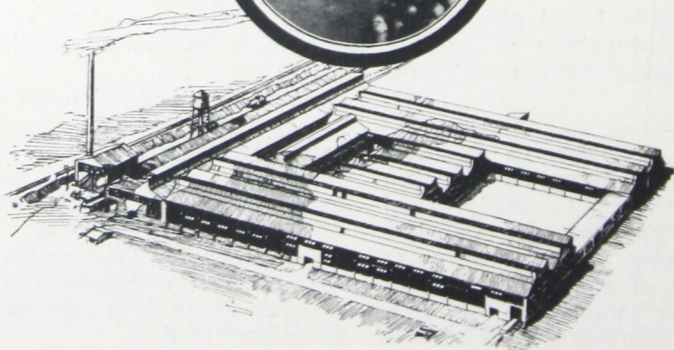
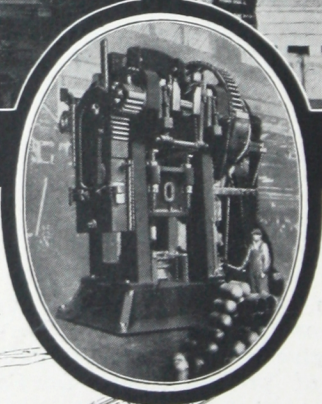
*View in Heavy Press Shop*



*Receiving Platform*



*Light Press Shop*



*The YPS Plant. Buildings cover seven and one-half acres*



## *"Redevelopment" is but one of the YPS Services*

IN THE preceding pages we have given various examples of redevelopment jobs handled by the YPS Redevelopment Engineers. However, it must be borne in mind that *redevelopment* is only one branch of the pressed steel service offered by the YPS organization.

### *General Contract Pressing*

This great plant, with its seven acres of area, its dozens of heavy duty presses, its scores of light presses, and the shipping facilities of three railroads, is also constantly busy producing pressed steel stampings of a general character for the leaders in a great many classes of industry in all parts of the country.

And the ability of the YPS Pressed Steel Engineers to determine the correct "flow" of cold metal under heavy pressure so that pressed steel can be made accurate in dimension to within .015



### *The Seven Points of YPS Service*

1. *Long Experience*
2. *Highly Trained Engineering Ability*
3. *Absolute Accuracy*
4. *Highest Quality Materials*
5. *Prompt, Dependable Delivery*
6. *Adequate Plant Capacity*
7. *Economy of Manufacture*

*Can your pressed steel requirements be cared for satisfactorily with any less?*

of an inch, is always ready to meet the requirements of *any* user of pressed steel parts.

### *Standard Products*

In addition to this general contract pressing, the YPS organization also produces a line of standard pressed steel products. This includes the YPS Corrugated Pressed Steel Lift Truck Platforms, YPS Tote Boxes and Tote Pans, and Compound Boxes.

There is also a very complete line of standard pressed steel parts primarily designed for the agricultural industry. However, many of these parts, such as seats and tool boxes, are used extensively and with great satisfaction by manufacturers in other fields.

Those who may have use for any of these standard pressed steel products will find them fully described in other booklets which will be sent them gladly on request.



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## How YPS Redevelopment Service is Brought to You

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**Y**OUR own products may have little relation to those shown on the preceding pages. And yet, you can readily see that pressed steel redevelopment is not limited to any type of part or to one branch of industry.

If there is a single piece of cast metal in your product, you owe it to yourself to find out what saving for you there might be if you "*press it from steel instead.*"

This you can do easily, without the expenditure of a single dollar—in the following way:

Write to the Youngstown Pressed Steel Company at Warren, Ohio. If possible send samples or blue prints of the cast parts which you are using today—even if you think it doubtful that these could ever be pressed from steel.

State when it will be convenient for you to meet one of the YPS Redevelopment Engineers at your office or plant.

One of our consulting engineers—a member of our staff who knows all the ins and outs of pressed steel redevelopment from actual experience on scores of successful jobs—will be sent to you at that time.

He will come equipped to study your problem thoroughly with your own engineers, right on the ground.

He will first determine whether the

cast parts used in your product can be pressed from steel instead.

If they cannot, in their present form, he will judge whether or not they can be *redesigned* so that they can be pressed from steel.

Then he will explain the added selling advantages, such as smooth surface, better finish and lighter weight as well as the saving in production and shipping costs that you will secure if the part is "*pressed from steel instead.*"

If he believes that pressed steel will not be useful in your case—that it will not save you money or improve your product—he will tell you so, frankly.

If, on the other hand, he finds that pressed steel will be advantageous for you, he will assemble complete data and drawings and proposed designs will be prepared by the YPS Redevelopment Staff and submitted to you.

And then, when you approve the complete plans and estimates, the YPS die-makers and press men will start the actual work of pressing the parts from steel, for you.

This unusual service is at your disposal *now*. It has been used by hundreds of manufacturers with highly profitable results. It may be even more profitable for you. Our redevelopment engineers are ready and waiting to work with you.

THE YOUNGSTOWN PRESSED STEEL CO.  
Warren, Ohio

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